Missouri Botanical Garden

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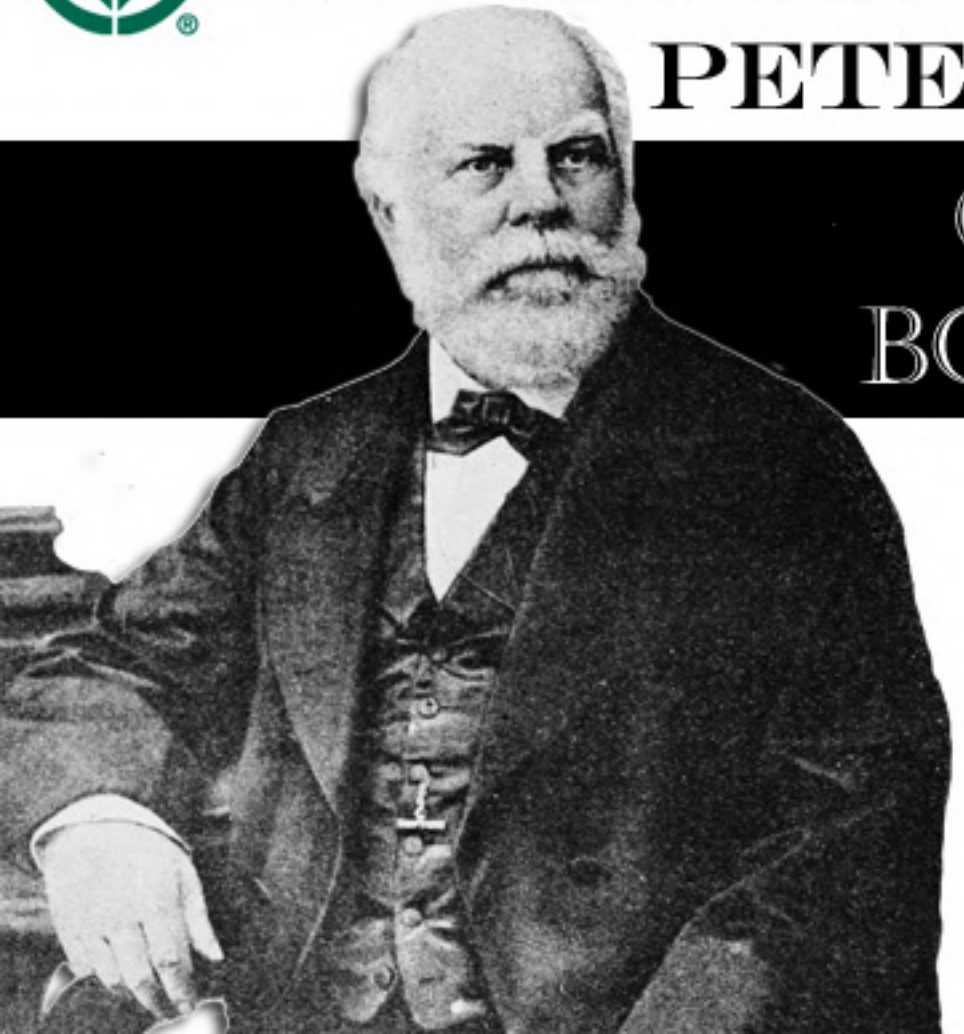
George Engelmann Botanical Notebooks



Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Another very interesting species is the SQUILLS,—SCILLA MARITIMA, or, as it is now called, *Urginea Maritima*, nominaly from Algeria, Africa; but widely distributed over the entire borders of the Mediterranean Sea. The bulbs are large and float about from place to place, never losing their vitality by the long sea voyage, but immediately, on being thrown upon shore, take root and grow luxuriantly, from which circumstance they have received the popular name of SEA ONIONS, from the inhabitants living in the vicinity. In an old work on Botany, now before me, I find the following interesting passage.—"They grow naturally on the sea-shore and in the ditches where the salt-water naturally flows with the tide, in most of the warm parts of Europe; so cannot be propagated in gardens, the frost in Winter always destroying the roots, and for want of salt-water they do not thrive in Summer."—This paragraph must be taken with a good deal of allowance in regard to salt-water, for bulbs in our greenhouses form immense clumps in a few years, each bulb being often three and one-half inches in diameter, and they certainly get no salt here. They will not, however, endure any frost. Our treatment of the bulbs is exactly similar to other tender bulbs. In the same work, I find:—"Sometimes the roots, which are bought for use, put forth their stems and produce flowers as they lie in the druggists' shops."—The numerous, fleshy fascicles or coats forming the bulb, are filled with a viscous juice, very bitter and acrid, and even corrosive, which contain a peculiar principle, called scillitine. The outer coating of the bulb is a thin, brown skin; while the fleshy, inner scales, in some bulbs are white, while others are of a dark color, and produce the Red Squills, an inferior drug, which, however, were reputed to be the extract from a less valuable medical bulb,—the *Scilla Pancration*. The drug obtained from the white-scaled variety, is the only marketable one in demand. Squills are also used quite extensively for tanning leather.

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the garden, (Sept. and Oct. are the best months for planting) where they make lovely border for a walk or flower bed, and as they bloom so early in Spring, larger summer flowering plants can be planted so near them that their foliage will cover the whole ground without injury to the *Scilla* bulbs, and save room, which is often a consideration in the flower garden. They are also very desirable in a permanent bulb bed, and make a fine display with their many shades of blue when grown with such dwarf growing plants as Hyacinthus, Lily of the Valley, &c.; but their favorite position is along the border, or even planted singly on a lawn in the turf.

Scilla Fraseri. FIG. 142.

We have said nearly all the species offered by the florist are foreign, but occasionally one offers our native American species, *Scilla Fraseri*, (Fig. 142) which, by the way, has had a hard time to maintain an existence, (with botanists in its nomenclature,) for it has had its name changed so often by botanists, that it is quite doubtful if it can yet claim a secure resting place (on paper). It was first introduced to the floral world by Nuttall, under the name of *Phalangium esculentum;* changed by Ker to *Scilla Esculentum;* to *Camassia Esculentum*, by Lindley; to *Camassia Fraseri*, by Torrey; and last to *Scilla Fraseri*, by Dr. Gray.

The flowers are of a pale blue color, borne in an elongated raceme, on stalks from one to two feet high during May. Sepals widely spreading. The long, linear leaves are produced quite freely, giving the plant a luxuriant appearance in its native moist prairie home in the western portion of North America. The bulb is long and round, made up of concentric rings or layers like the Onion, and is one of the native food products of the North American Indian,

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Feb 1880

Exadenus Gris. a genus established by Grisebach in Obs. Gent. 36 - & Sp. Bord 9. 127. but united by Benth. & Hook 2. 818 with Halenia is certainly well distinguished from Halenia by the structure of the capsule and by the form of the seeds. The capsule is for the greater part, as far as it is placentiferous, distinctly bilocular, the placentae being central, protruding from the centre of the dissepiment into the cells. In Halenia (I have examined H. deflexa) the placentae are distinctly parietal, the ovary and capsule unilocular). A still more important character is found in the seeds. In Exadenus they are globular, only about 1/4 line in diameter, and reticulate, like those of Erythraea; in Halenia they are larger, oblong and with a smooth surface. In the Botany of Wheeler's Explorations & Surveys p. 190 I have insisted on the importance of this seed character and have proposed a separation of the Gentianeae in the arrangement of the Gentianeae into two tribes, one with small reticulate seeds (Erythraea, Sabbatia, Chlora, Lebetia, Centaurea etc.) the other with smooth or otherwise formed seeds. But here are here two genera so closely allied that they have been ranked by some, with seeds so different?

The species in Exadenus are like those of Halenia, Swertia, Frasera, Eurypyge and many Gentianeae venatile, but not as Bentham & Hooker have it in all these genera "sepissime obtrorsum revolute". This is the case only always after they have shed their pollen, as I have shown in the same work p. 191. note; but before the flowers open they are introrse and while they open and shed their pollen they slowly turn over.

The species of Exadenus seem rather obscure. From the few specimens which I have been able to examine may be thus characterized:

1 E. parviflorus. Gris. Gent 322? caule stricto quadrangulato, foliis infimis lineari-spatulatis obtusis, superioribus lineari-lanceolatis, calycis segmentis et corollae lobis triangulari-lanceolatis tubo brevioribus, glandulis parvis extus conspicuis. staminibus medio tubo adnatis. — Chihuahua, Mexico, Gliddon bright. 618

2 E. Engelmanni Gris Gent 323? caule stricto infra alato-quadrangulato, foliis infimis obtusis, caeteris lanceolatis, (ramis brevibus orbis); calycis segmentis et corollae lobis triangulari-lanceolatis tubo aequilongis; glandulis extus prominentibus obtusis conspicuis; staminibus faucem adnatis.

Parry & Palmer, Mexico 600 feet (the fruiting specimens.)
is a slender form of the last.

3 E. longirameus n. sp. Caule stricto pendulo, foliis ramis elongatis, foliis linearibus lanceolatis, superioribus lineari-bus; calycis segmentis et corollae tubo ovato-lanceolatis tubum aequilongis; glandulis extus conspicuis; staminibus faucem vel paulo infra fauces adnatis.

Parry & Palmer Mexico 600 ft. (the flowering specimens) Size of flowers intermediate between the two others

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~30.

Small type

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the female ament becoming lateral, a rare anomaly.

43. P. Elliottii, Engelm. For a full account see below.

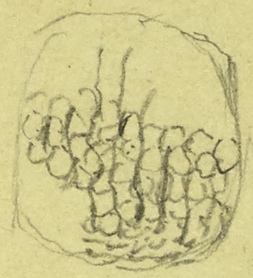
44. P. Cubensis, Griseb. Bundles of ~~epiderm~~ strengthening cells large, developed so that they sometimes extend from the epidermis to the internal duct. The variety ? terthrocarpa, Wright in Gris. Cat. Cub 217, of which I possess a specimen, is a very curious form, but not a variety. It seems that in this case the growth of the axis, after producing an ament, is ~~sometimes~~ entirely arrested, so that instead of being ordinarly lateral the ament appears subterminal, and that in the following season the maturing cone remains erect near the top of the shoot, which is not further developed. The species is found in different parts of Cuba, in the maritime districts as well as on mountains, and is probably the one which gives the name to the Isle of Pines. A cone from the Bahama Islands, preserved in the Kew Museum under the name of P. Taeda, probably also belongs here.

45. P. Wrightii, Engelm. n. sp. Leaves in twos, rarely in threes, slender, 5-8 inches long, 1/2 line wide or less, sheaths 4 lines long, with age a little shorter; bracts small (1/2 line long) very slightly fringed and rather deciduous; cones peduncled, nearly lateral, oval 1 1/2 - 2 1/2 inches long, scales radiately grooved, thickened on the crested edge, apophyses retuse, umbo immersed, prickle short; seeds 2 1/2 lines long, faintly ridged, wings (in the few perhaps incomplete specimens seen) not much longer, widest above the base.

Mountains in Eastern Cuba, apparently mixed with the last P. Cubensis, Chs. Wright 1462 in part, 3190. ~~I~~ very little apparently well distinguished from P. Cubensis by its slender bivate leaves, those of that species being longer (8-10 and even 12 inches long) and nearly twice as wide, and always in threes, with sheaths at first 6-8 lines long, often and strongly fringed rather persistent bracts 3-3 1/2 lines long, and with larger cones and seeds and wings. The cones of both species are arranged scales in the 21/34 order and the 8 and 13 spirals are the most prominent.

Penya Palum 600 — Exadenus brevicornis — Feb 12 1880

×30



$\frac{17}{60}$ li = 0.28 li

$\frac{36}{60}$ mm 0.60 mm

×60

basal

×60

cuticle ritiolate-foveolate

×4

calyx removed

×10 sect. of capsule

Grs. in Dec 9, 125 rays
Cobi corolla tube simple
brevi-lobes — but not here!
stamens fauci inserta, non tubo

1, diam of seed — seeds of E. parviflorus Nitrogyne 1

2 — of E. 618. Ghirbork Mexico

1 = $\frac{13}{60}$ = 0.23 li diam

2 = $\frac{15}{60}$ = 0.25 li

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Pandanus utilis (odoratissimus).

Obwohl längst als eine der schönsten Warmhauspflanzen bekannt, sieht man denselben weit weniger als Zimmerpflanze benutzt, als er es verdient, wohl hauptsächlich, weil er für sehr empfindlich gehalten wird. Aehnlich dem Gummibaum verträgt aber gerade dieser Pandanus während des Winters sehr gut die trockene Zimmerwärme und hält sich da sogar besser als in einem nicht sehr warm gehaltenen Gewächshaus. Als Tafelschmuck gibt es kaum eine graziösere Pflanze mit so elegant umgebogenen Blättern, deren glänzendes Dunkelgrün durch den braunrothen, sägeartig gezähnten Saum gehoben wird; hübsche Exemplare . . . . . 12 Stück 3 *Rl.*, à Stück 10 *Sgr.*

Pistia Stratiotes.

Pistia Stratiotes, die hübscheste schwimmende Pflanze für Bassins, Zimmeraquarien oder Goldfischgläser; gedeiht am besten in Regen- oder Flusswasser von etwa 20° Wärme.
12 Stück 1 *Rl.*, 3 Stück 10 *Sgr.*, à Stück 5 *Sgr.*

Die Engrospreise der jungen Palmen und Pandanus befinden sich auf einer besonderen Liste, welche wir den sich dafür Interessirenden zusenden.

Pandanus

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Nr. 12.	13.	14.	15.	16.	17.	18.	19.	20.
Sgr. 30.	27½.	26¼.	26¼.	26¼.	25.	26¼.	22½.	25.

Nr. 21.	23.	24.	26.
Sgr. 36.	26¼.	37½.	40.

Nr.		Sgr.
18.	Rosenscheere 14 Cm.	26¼
19.	» 10 »	22½
20.	Stecklingsscheere	25
21.	Blumenscheere, die geschnittenen Stengel festhaltend, 15 Cm.	36
22.	dieselbe, 12 Cm..	25
23.	Weinscheere, 15 Cm.	26¼
24.	Heckenscheere, kleinere Sorte, 50—55 Cm.	37½
25.	» grössere 60 Cm. . .	42½
26.	Baumscheere (Sécateur), 20 Cm.	50
27.	» feinere französische.	70
28.	» feine für Damen, französische. . .	45
29.	» Pariser, in Lederfutteral nebst Reserveklinge und Reservefeder	120
30.	Französisches Baumschulmesser	15
31.	Spargelmesser, engl. neuester Construction, sehr practisch .	37½

Baumsägen, Raupenscheeren, Obstbrecher und sonstige **Garten· instrumente** nach Aufgabe zu soliden Preisen.

Für alle in diesem Verzeichnisse nicht aufgeführten Artikel bleiben die Preise des letzten **Haupt-Verzeichnisses** in Gültigkeit. Es stehen von demselben noch Exemplare auf franco Anfragen zu Diensten.

Erfurt, im August 1872.

Haage & Schmidt.

Druck von F. A. Brockhaus in Leipzig.

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Helenia diffusa

Feb 12 1880

Bingle, Canada 1879

× 30

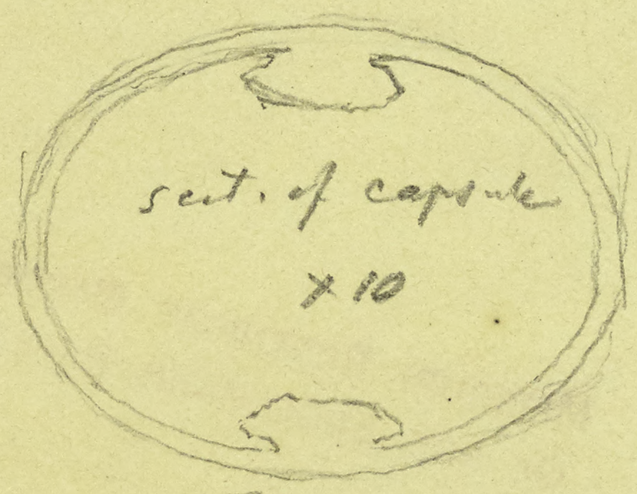
seed

oblong

smooth,

half as

wide



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Halesia Rotterocki" Gray

Feb 21 1875

& Rothrock

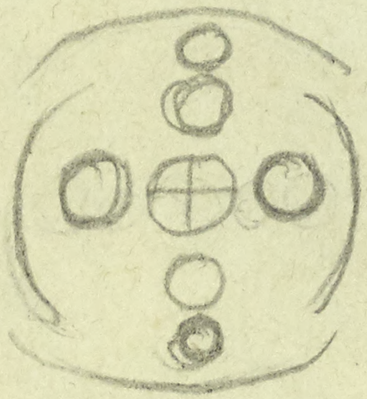
seed x10

ovate globose
pale shining

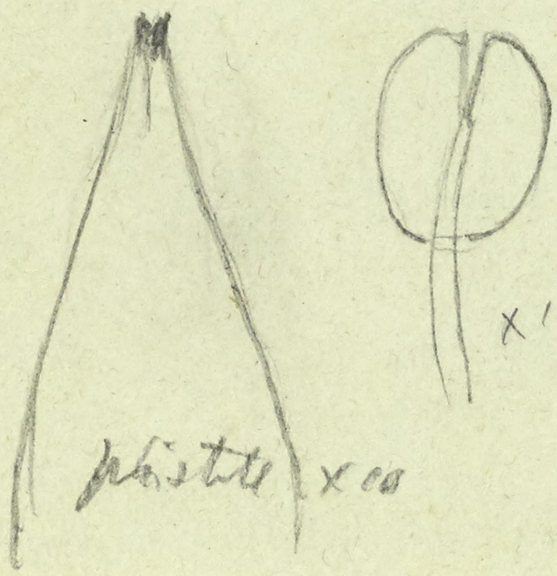
x 2

x 2

stamens inserted just
below the face
of the sutures reversed



6 flowers in a verticil



pistil x 10

x 10

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Halenia Loewii Rothrock no 733 Mt Graham Arizona
Sept 1874

caule spithameo-pedali acute 4-angulato
biennis erecta v. adscendente, v foliis infimis
parvulis spatulatis obtusis, caulinis dilatatis
lanceolato-lineari-bus, acutis subtrinervii
summis 4 approximatis subumbellatis florif-eris
(semipollicaribus) majoribus flavis)
florib-us (longiuscule pedicellatis) in summo caule
4 meris
cymoso - subumbellatis (corpore saepius expleni)
calycis labis lanceolato - linearibus tubo corollae
campanulato longioribus laciniis cor. ovatis acuminatis
tubo vix longioribus, calcaribus crassis obtusis
horizontalibus parum curvis corollae dimidio
aequantibus; staminibus ad faucem inseritis labiisq
brevioribus antheris ovatis obtusiusculis demum retortis
stylo filiformi; stigmatibus ovatis obtusiusculis mucronatis capsula lanceolato ovoidea pauciseminata exserta
seminibus ovato-globosis laevibus. fruct

6-9 inches high, lower leaves 4-6" upper 10-15" fl. 5-6" width of spread of spurs 3"
spurs 2½"

Dr. GEORGE ENGLEMAN,
N. W. Corner of Garrison Avenue and Locust Street.

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Upper part leaves similar to the
lower leaves but smaller. Flowers
in apparent pairs in axils of
upper leaves, the terminal one
usually 3 flowered. Involucre
of 4 bracts in 2 pairs, the
outer pair much smaller than
the inner. Flowers yellow.
Achenes 4 angled, 4 awned.
(Coreopsis tinctoria Nutt.)
Collected in the valley of the
Missouri River near Kansas City
by Geo. Engelmann.

The Mexican Helianthus, Schiedeana multiflorus
has ovate undulate pubescent upper
& lower stem leaves & pedunculate
corymbs.

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ple,ees o[illegible] ny on b[illegible] sev[illegible]om died, and the mortality would have been far greater but for the kind attention of Dr. Evans, who, though himself laboring under an exhausting diarrhœa, allowed himself no rest, but in the triple capacity of physician, nurse and companion, was ever at the bed-side of the sick, administering to their wants, and encouraging them by his cheering words.

From Fort Pierre, Dr. Evans again visited the Mauvaises Terres, where in a short time he succeeded in obtaining a large collection of the fossil fauna of that region, even more extensive than his former one, and embracing a considerable number of new and interesting species. On his return to the Fort he set about preparing for his long journey, which from the hostility of the Blackfeet and other Indian tribes, together with the difficulties incident to the route, was regarded by the Indian traders as extremely hazardous; hence it was exceedingly difficult to find either guides or hunters willing to accompany him. After much persuasion, however, he succeeded in procuring the services of two hunters and a half-breed guide, they agreeing to go with him as far as the Flathead Village. With this meagre escort he started from Fort Pierre, but scarcely had he reached the borders of the Blackfeet country ere his hunters became alarmed, and unceremoniously left his camp during the night and returned to the Fort. Under these discouraging circumstances a person less courageous than Dr. Evans would have turned back; but difficulties served only to develope the indomitable

---

* To Dr. Hiram A. Prout is justly due the credit of having first called attention to the existence of such remains in that region by his excellent memoirs of Palæotheroid and other bones, published in Silliman's Journal.

2-14

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ises to be o[illegible] se b[illegible]it
the survey was ordered.

September 2, 1861.

The President, Dr. ENGELMANN, in the chair.

Seven members present.

The following donation to the library was received: Bull. de la Soc. Imper. zool. d'Acclimatation, Paris, No. 7, Juillet, 1861, *from the Society.*

Mr. Holmes presented from Dr. B. F. Shumard the following skulls from Texas: *Felis pardalis*, Linn. (Tiger-cat), from Travis Co.; *Felis onza*, Linn. (Jaguar), from Hays Co., and *Dicotyles torquatus* (Peccary), from Travis Co.

Dr. Engelmann made some remarks on the temperature and humidity of the past three summer months. June and August were by more than two degrees warmer than the averages for these months, while July was cooler. The quantity of rain for each of these months was below the average

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Pleurozyga rotata

Oct 6 27

186

Lebanon 1864

Brunt mist

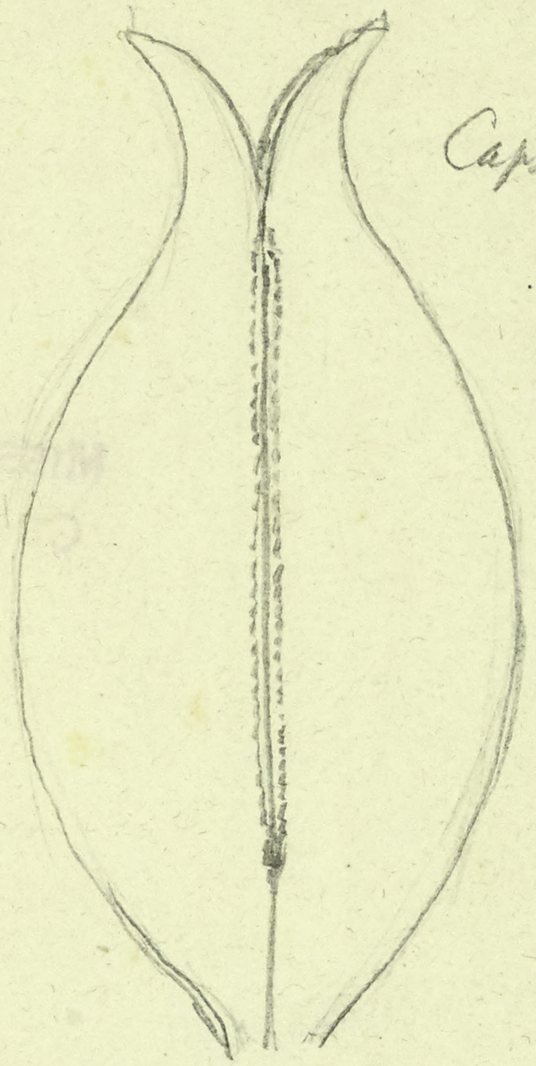
Pollen

×415

×30

seeds

Capsule ×5



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ALEX. LEITCH,

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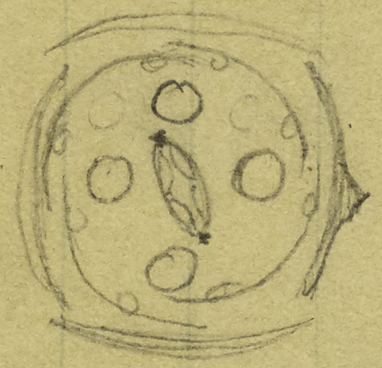
Plumeggna rotata

Eng. Aug 31 1874



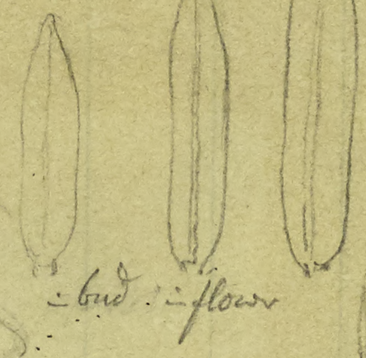
in full bloom 11 a m
anthers horizontal
shedding Pollen

x 10

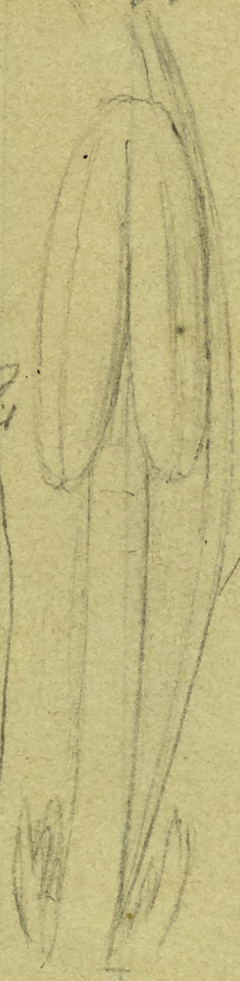
young fruit

pistil x 2

x2



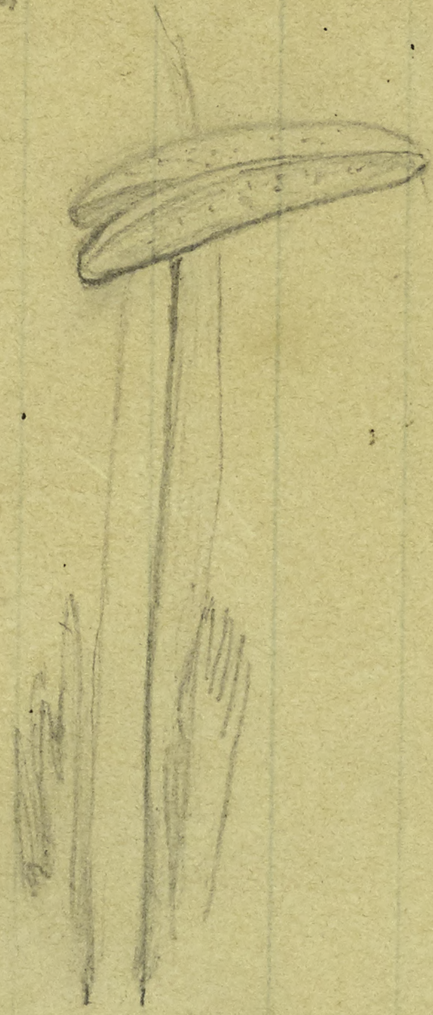
= bud = flower



x 10

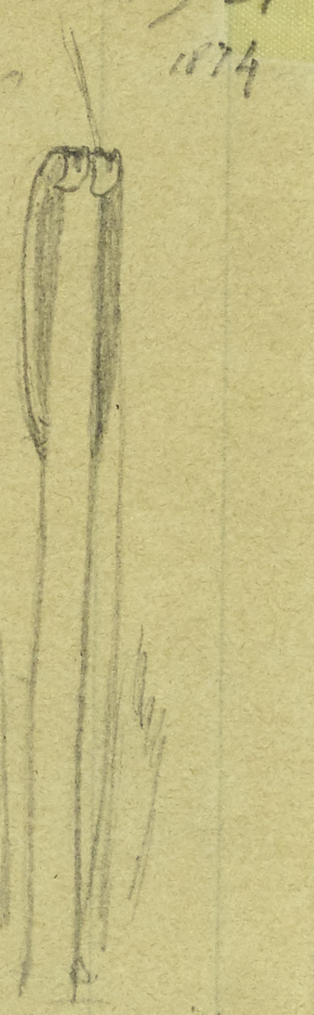
petal

stamen from bud, seen from inside of flower



x 10

stamen = open flower before noon anther horizontal shedding pollen



stamen with effete anther next morning anther curved backward — seen from inside of flower

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N. 477 *Plectrogyne retusa* Gris Jan 1862

Rocky Mountains 1862 Hall 477

young seed

×2

fr. ps. inside

×60

×2

Base of petal

×30.

filament

×4

pistil & Calyx & stigma

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Jan 22 1877

Rhexiagyne rotata

from specimen collected at Sanpire Sept 1874

×10

×60

upper part of ovary ×60

Stigmatic papillae ×150 and Pollen papillae 0.09 mm long 0.012 diam

Pollen grain seen among the stigmatic papillae

papillae ×415

middle part of stigma

line ×60

Pollen grain

$\frac{12}{415} = 0.029$

0.029

apex of ovule ×60

×10

GEO. B. FRESE & CO'S,

No. 3005 Olive Street,

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Prescribed by

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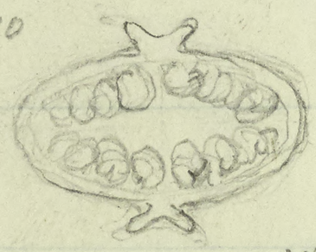
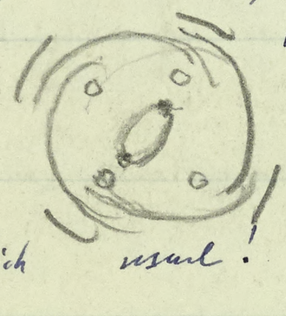
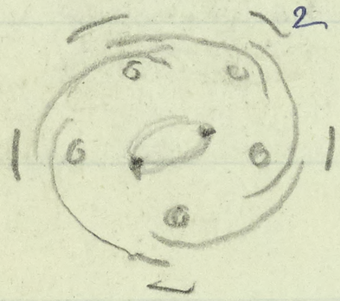
Phacoroggyna rotata, Empire of Colorado Augs 11 1881


×10

sect. of ovary, with the spreading Camellae of the stigma, to which pollen was adhering.


1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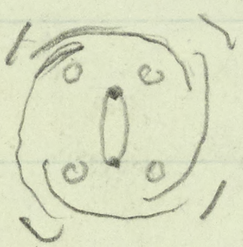

3

1 is the regular 4 parted flower, 3 was seen once, the carpels alternating with the 2 anthers

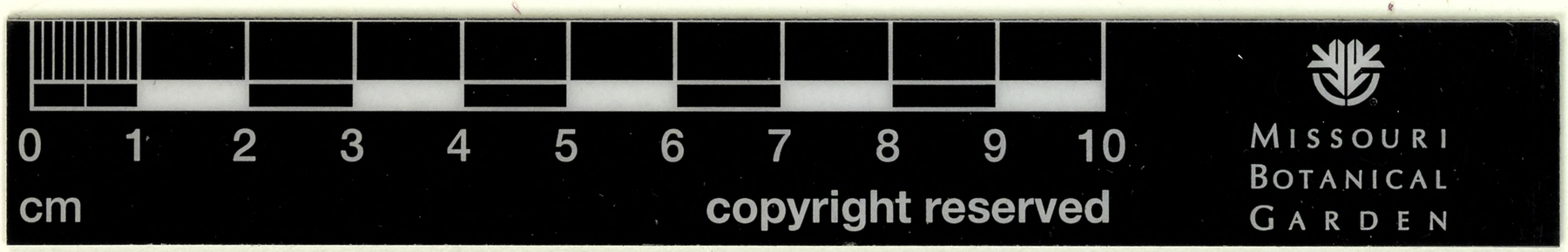
seen once! good observation!

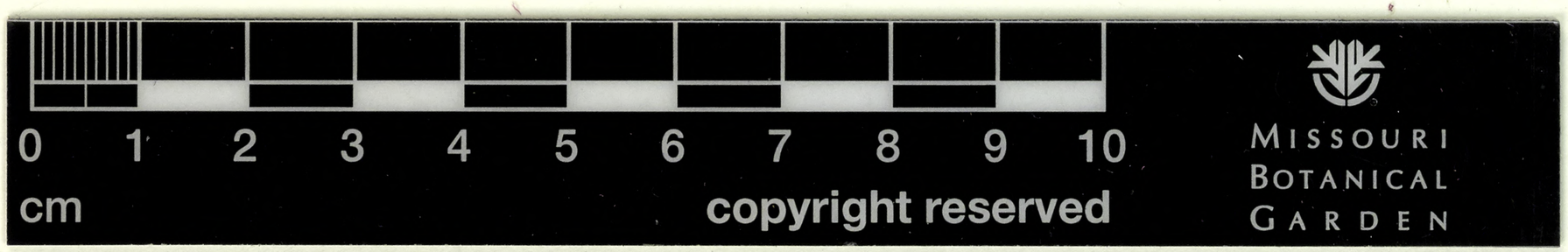
4, seen on same plant as № 3, carpels oblique

On the ~~rainy~~ sunny morning of Aug 11 at 8 A.M. the anthers are already reversed and open. some few are yet horizontal — flowers wide open — at 10½ o'clock I also found some few anthers yet horizontal, Camellae of stigma spreading and pollenized.

Aug 12 dark foggy morning; flowers at 7½ closed, but on examination I find the anthers mostly open and discharging pollen; some are reversed, others horizontal in the closed flowers but soon become reversed, visibly moving, while under examination. Flowers open only one day.

Result: Flowering through August and September. In warm and clear weather the anthers become horizontal and open early in the day, say between 6 and 8 o'clock; in opening they discharge pollen on the spreading Camellae of the stigma; the flower is self-fertilizing and open only one day. In gloomy weather it may remain closed but fertilization goes on nevertheless. Late in season, cool weather, or when kept in water the anthers open later in the day, at noon or 9–12 a.m.



3940

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS